California Monthly Climate Summary
May 2012

Weather Highlights

May 2012 was a warm and dry month for California. According to the Western Region Climate Center's California Climate Tracker, the monthly average temperature was 61.6°F which is 2.1°F higher than the long-term average of 59.5°F. With a statewide average of 0.20 inches, precipitation in May was 22.3% of average. Water year 2012 has seen 5 months of below normal precipitation and 5 months of above normal temperature. Plots of the last 12 months of mean temperature and precipitation relative to the historical distribution are shown at the end of the report.

May started with high pressure sitting over the west coast. During the first week a series of weak systems spread showers across northern California while southern California experienced onshore flow and cool conditions. The second week again started with dry and mild conditions with a high pressure system over the northern part of the State and a low pressure system moving across the southern part of the State. No precipitation fell but temperatures remained cool. By the end of the week temperatures had warmed up. Seasonal conditions continued in the third week with some isolated thunderstorm activity in Shasta and Lassen Counties. Temperatures in the southeastern deserts exceeded 110°F. The month closed out with a low pressure system crossing the State. Moisture was limited and precipitation was light with some snow at higher elevations.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 34 temperature records tied or broken and 2 precipitation records set or tied for the month. Of the 34 temperature records set, 18 were for new high maximum temperatures and 7 were for new high minimum temperatures. Records were set over 15 days of the month. The two precipitation records were for Needles and Barstow-Daggett airport which both recorded no precipitation for May. In Needles this has happened 43 other times since records began in 1893. For Barstow-Daggett, 12 other years also showed no precipitation in May. On May 23rd Santa Barbara set a new high maximum temperature record with a reading of 86°F. The old record of 82°F was set back in 1949. On May 27th, Ramona set a new low minimum temperature record with a reading of 40°F. The old record of 41°F was set in 1977.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 123 stations recorded a minimum temperature below freezing in March while 23 stations reached or exceeded 100°F at least once during the month. Statewide extremes from the CDEC network of temperature gages are shown below. Also shown are the monthly average extremes from the CIMIS network. A table of regional average minimum, mean, and maximum temperatures from the CDEC stations is also shown at the end of the summary.

Precipitation in May was below normal for all regions in the State. For the CDEC precipitation gages for May 2012, the largest amount of precipitation recorded was at Gasquet Ranger Station in the North Coast region with 2.46 inches. This is 56% of the average precipitation for this station for May. At the other end of the spectrum, 34 stations reported zero precipitation for the month. For the CIMIS network, Sisquoc in Santa Barbara County topped the precipitation charts with 3.76 inches for the month and 58 stations recorded no precipitation. Some CIMIS gages may show large precipitation totals if the gages are not covered during irrigation activities so care should be given to review precipitation data used from this network.

The 8-Station Index for northern California precipitation recorded 0.5 inches in May. On average, 2.1 inches of precipitation is recorded for the 8-Station index for the month. Statewide, the average precipitation for the month was 23% of the long-term average based on the California Data Exchange Center (CDEC) gages. Precipitation percentages by region from the CDEC gages are shown in a table at the end of this document.

CoCoRaHS Update

May 2011 continues California's fourth year with CoCoRaHS – the Community Collaborative Rain, Hail and Snow Network. This group uses citizen volunteers to record rain, hail and snow data. The users enter the data online at the CoCoRaHS web site. The web site provides the opportunity to see spatial detail of rain and snow patterns. A map from May 4, 2012 is shown at the end of the document. As of the end of April, California has 868 volunteers signed up spanning 53 of California's 58 counties. The counties without volunteers are Alpine, Colusa, Glenn, Modoc, and Tuolumne. The county with the most volunteers at the end of May is Sonoma with 93 volunteers. For the month of May, 9,058 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in May was in Humboldt County where 1.17 inches was recorded on 05/4/2012. There were 3 snowfall reports recorded with the largest being 1 inch in Placer County. The largest total depth of snow reported in May was 48 inches in Placer County. Three hail reports were submitted in May from 2 counties. The largest stone size reported was 3/8" sized in Shasta County. For more information on CoCoRaHS, please visit http://www.cocorahs.org.

Snowpack and Water Supply Conditions

The automated snow sensor network in California showed a statewide average of 0.3 inches of snow water equivalent for the first of June. This is 3% of the long-term average for the beginning of June. A project with NASA's Jet Propulsion Laboratory is providing weekly maps from the MODIS satellite data. A sample map from the end of May is shown below showing snow only at the higher elevations. The Water Supply Index for WY 2011 was wet for the Sacramento Basin and wet for the San Joaquin Basin. Water year 2010 resulted in a below normal category for the Sacramento Basin and above normal category for the San Joaquin Basin for the Water Supply Index (WSI). The median forecast for the WSI for WY2012 predicts the Sacramento Basin will fall into the below normal category and the San Joaquin will fall into the dry category. Water supply information for California can be found at

http://cdec.water.ca.gov/water_supply.html. A historical listing of water year categories for both basins can be found at http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST.

Drought Monitor and Seasonal Outlook

The maps for California for April 24 and May 29, 2012 are shown below. The Drought Monitor maps can be found on the National Drought Mitigation Center's (NDMC) website http://drought.unl.edu/dm/. These maps are largely a reflection of precipitation and soil moisture deficit estimates. As of the May 29th depiction, 22.6% of California is depicted in the D2 or severe drought category, 36.29% of California is depicted in the D1 or moderate drought category. An additional 25.22% of the state is depicted as D0 or abnormally dry. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for June through August from NOAA depicts California in persisting drought throughout most of the state. This forecast is based primarily on climatology and forecast models. Maps and information can be found at http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html. Updates are provided twice per month.

The California Nevada River Forecast Center developed some drought monitoring tools for California that are now available on CDEC and are automatically updated. These tools look at the frequency associated with precipitation deficits for the Northern Sierra Eight Station Index and the San Joaquin Five Station Index. Another tool looks at the frequency of end-of-month storage for select reservoirs in California. The frequencies of the observations are related to the Drought Monitor's drought categories D0 through D4. The links can be found on the State Climatologist web page and are repeated here:
http://cdec.water.ca.gov/cdecapp/drought/getres.action (California Reservoirs – Drought Status)
http://cdec.water.ca.gov/cdecapp/drought/get8SI.action (Sacramento River Drought Status)
http://cdec.water.ca.gov/cdecapp/drought/get5SI.action (San Joaquin River Status)

For May, the Eight Station Index is in the 37th percentile for the 12-month period and the Five Station Index is in the 21st percentile for the 12-month period. For the reservoirs, only San Luis and Casitas are in the D1 category. All other reservoirs in the report are in drought free conditions.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) has transitioned to neutral conditions. Equatorial sea surface temperature anomalies for the tropical Pacific have moved towards positive values with the Niño 3.4 region posting a reading of 0.2°C anomaly at the beginning of June. The March through May 3-month running mean of the Ocean Niño Index (ONI) is -0.3. Five consecutive ONI values need to be below the threshold o f -0.5 for conditions to be classified as a La Niña event (five consecutive values above the 0.5 threshold need to be observed for classification as an El Niño event). Most forecast models have the tropical sea surface temperatures moving to El Niño conditions during the second half of 2012. More information can be found at the

Climate Prediction Center's web site:
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/
Updates are posted weekly. The latest three month outlook (June through August) from NOAA indicates equal chances of above or below normal temperatures for the coastal and far north areas of the State with the inland areas having a higher probability of above normal conditions. For precipitation, equal chances of above or below normal precipitation stand throughout the State with the exception of the northern edge of the state which is forecast to have an increased probability of below normal precipitation. Outlook plots and discussions can be found at http://www.wrcc.dri.edu/longrang/. General weather information of interest can be found at http://www.noaawatch.gov/. For anomaly information please see http://www.wrcc.dri.edu/anom/cal_anom.html.

Agricultural Data

May 2012 saw development of crops throughout the State. The wheat crop headed and some harvest began in the southern part of the State. Alfalfa went through its second cutting. Cotton was planted as was some rice. Corn continued to show good development. Stone fruits continued to progress with prune and peach orchards being thinned due to a heavy set. Early varieties of peach, nectarine, and apricot were harvested in the San Joaquin Valley. Cherry harvest started picking up while fruit was developing on grape vines. Nut crops were developing with almond nuts hardening. Vegetable crops were progressing well while others were harvested. Rangeland conditions were reported in good to fair condition during the month. Some cattle were moved to higher elevation pastures. For further crop information see http://www.nass.usda.gov/index.asp.

Other Climate Summaries

California Climate Tracker (new product of Western Region Climate Center)
Golden Gate Weather Service Climate Summary
NOAA Monthly State of the Climate Report

Statewide Extremes (CDEC)

High Temperature – 114°F (Buttercup, Colorado River Desert)
Low Temperature – -1°F (Casa Vieja Meadows, Tulare Basin)
High Precipitation – 2.46 inches (Gasquet Ranger Station, North Coast)
Low Precipitation – 0.0 inches (34 stations)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 99.3^{0}F (Seeley, Imperial County)
Low Average Minimum Temperature – 32.3^{0}F (Big Bear Lake, San Bernardino County)
High Precipitation – 3.76 inches (Sisquoc, Santa Barbara County)*
Low Precipitation – 0 inches (58 stations)
*Sometimes irrigation water from sprinklers gets counted as precipitation if the gage is not covered.

Statewide Precipitation Statistics

Hydrologic Region	Region Weight	Basin Reporting			Stations Reporting			% of Historic Average	
		Basins	May	Oct-May	Stations	May	Oct-May	May	Oct-May
North Coast	0.27	5	5	5	15	14	12	36.7%	90%
SF Bay	0.03	3	3	3	6	6	6	14.6%	80%
Central Coast	0.06	5	5	5	10	6	6	14.2%	68%
South Coast	0.06	5	5	5	14	12	11	6.5%	65%
Sacramento River	0.26	10	10	10	42	35	35	30.7%	80%
San Joaquin River	0.12	7	7	7	26	25	22	9.8%	68%
Tulare Lake	0.07	5	5	5	27	27	26	15.1%	75%
North Lahontan	0.04	6	5	5	13	11	11	30.0%	64%
South Lahontan	0.06	5	4	4	14	11	11	2.3%	59%
Colorado River	0.03	2	2	2	6	4	4	0.0%	45%
Statewide Weighted Average	1	53	51	51	173	151	144	23.1%	76.2%

Statewide Mean Temperature Data by Hydrologic Region (degrees F)

Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	23	31.9	54.1	85.0
SF Bay	10	39.7	59.6	87.3
Central Coast	11	36.2	61.4	91.3
South Coast	46	41.0	63.9	92.4
Sacramento	74	33.4	57.6	87.9
San Joaquin	46	31.2	55.5	83.6
Tulare Lake	18	26.2	52.7	79.7
North Lahontan	24	24.1	47.0	72.8
South Lahontan	14	26.9	55.2	83.7
Colorado River Desert	8	51.1	80.0	107.5
Statewide Weighted Average	274	32.8	56.8	86.2

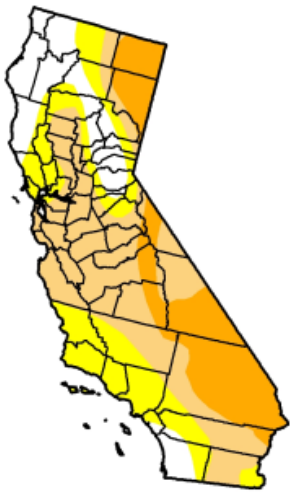
U.S. Drought Monitor

April 24, 2012
Valid 7 a.m. EST

California

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	15.84	84.16	60.23	22.87	0.00	0.00
Last Week (04/17/2012 map)	15.84	84.16	60.23	26.35	0.00	0.00
3 Months Ago (01/24/2012 map)	19.12	80.88	41.23	0.00	0.00	0.00
Start of Calendar Year (12/27/2011 map)	33.91	66.09	5.41	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	89.14	10.86	0.00	0.00	0.00	0.00
One Year Ago (04/19/2011 map)	99.99	0.01	0.00	0.00	0.00	0.00



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu

Released Thursday, April 26, 2012
Anthony Artusa, Climate Prediction Center/NCEP/NWS/NOAA

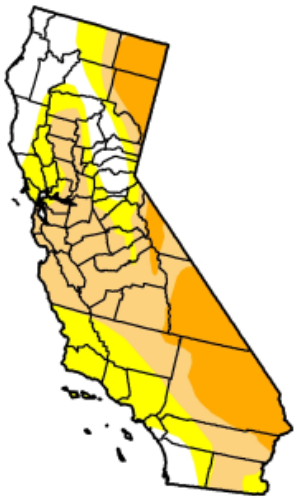
U.S. Drought Monitor

May 29, 2012
Valid 7 a.m. EST

California

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	15.89	84.11	58.89	22.60	0.00	0.00
Last Week (05/22/2012 map)	15.89	84.11	58.89	22.60	0.00	0.00
3 Months Ago (02/28/2012 map)	4.39	95.61	72.09	16.02	0.00	0.00
Start of Calendar Year (12/27/2011 map)	33.91	66.09	5.41	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	89.14	10.86	0.00	0.00	0.00	0.00
One Year Ago (05/24/2011 map)	99.99	0.01	0.00	0.00	0.00	0.00



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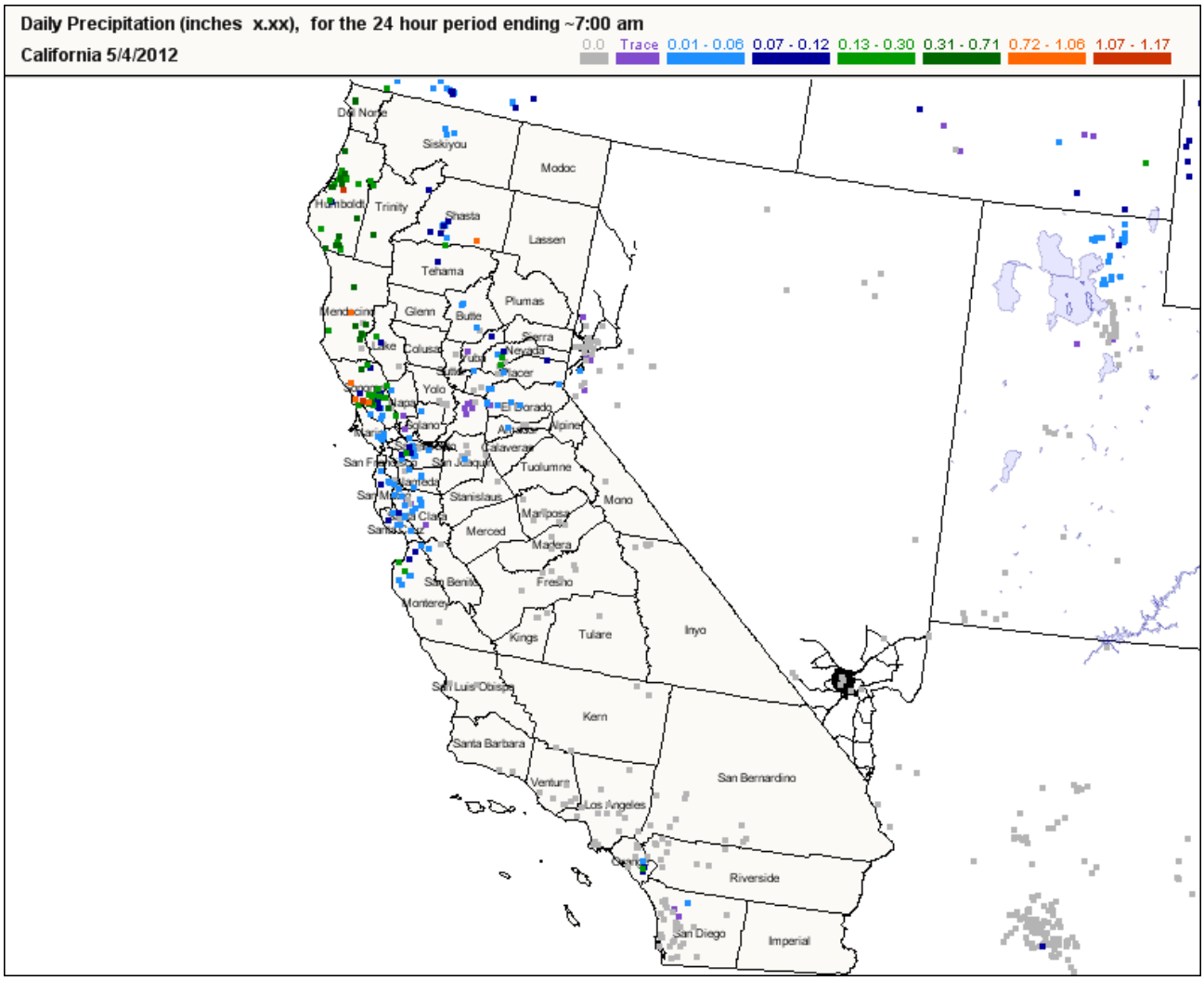
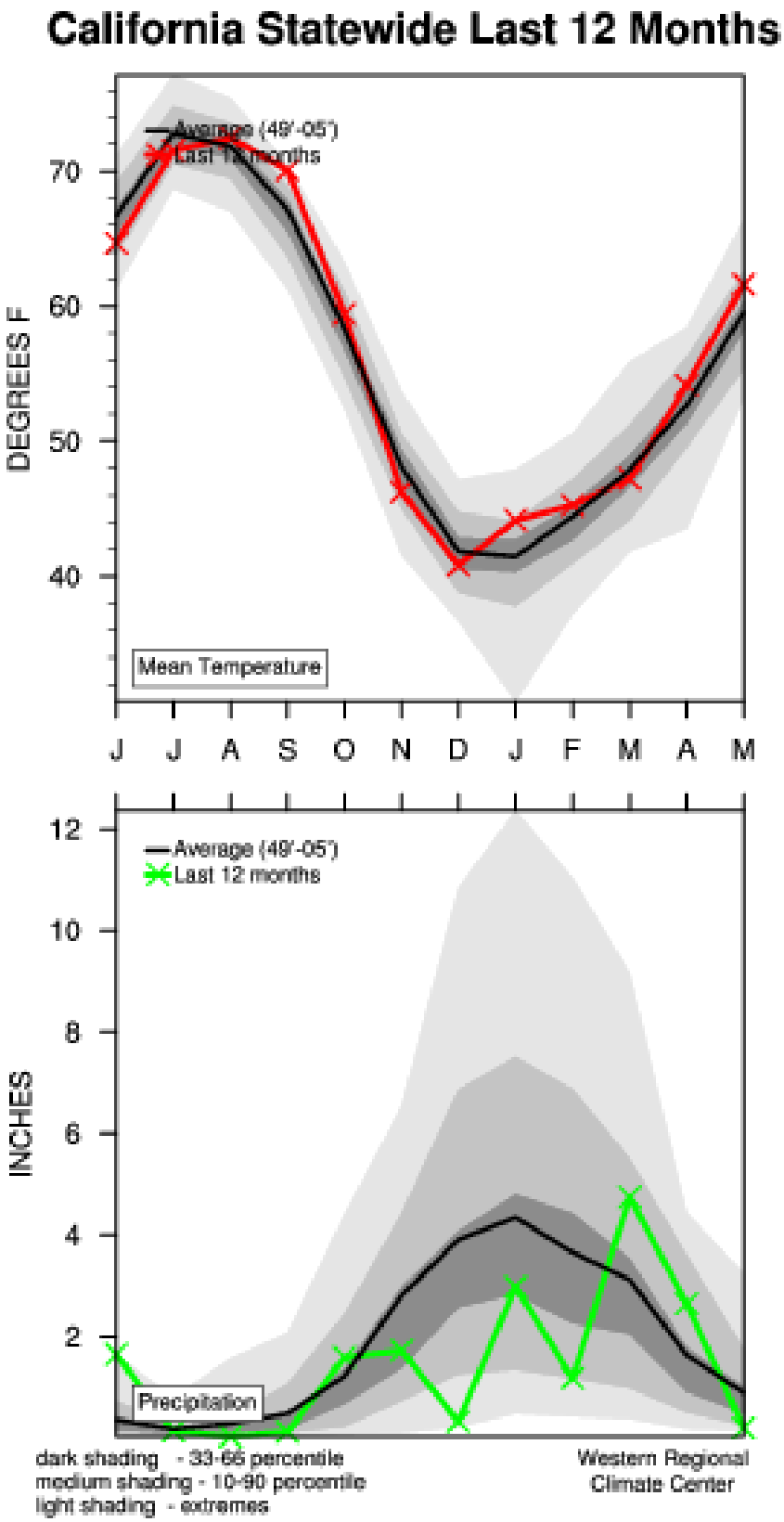
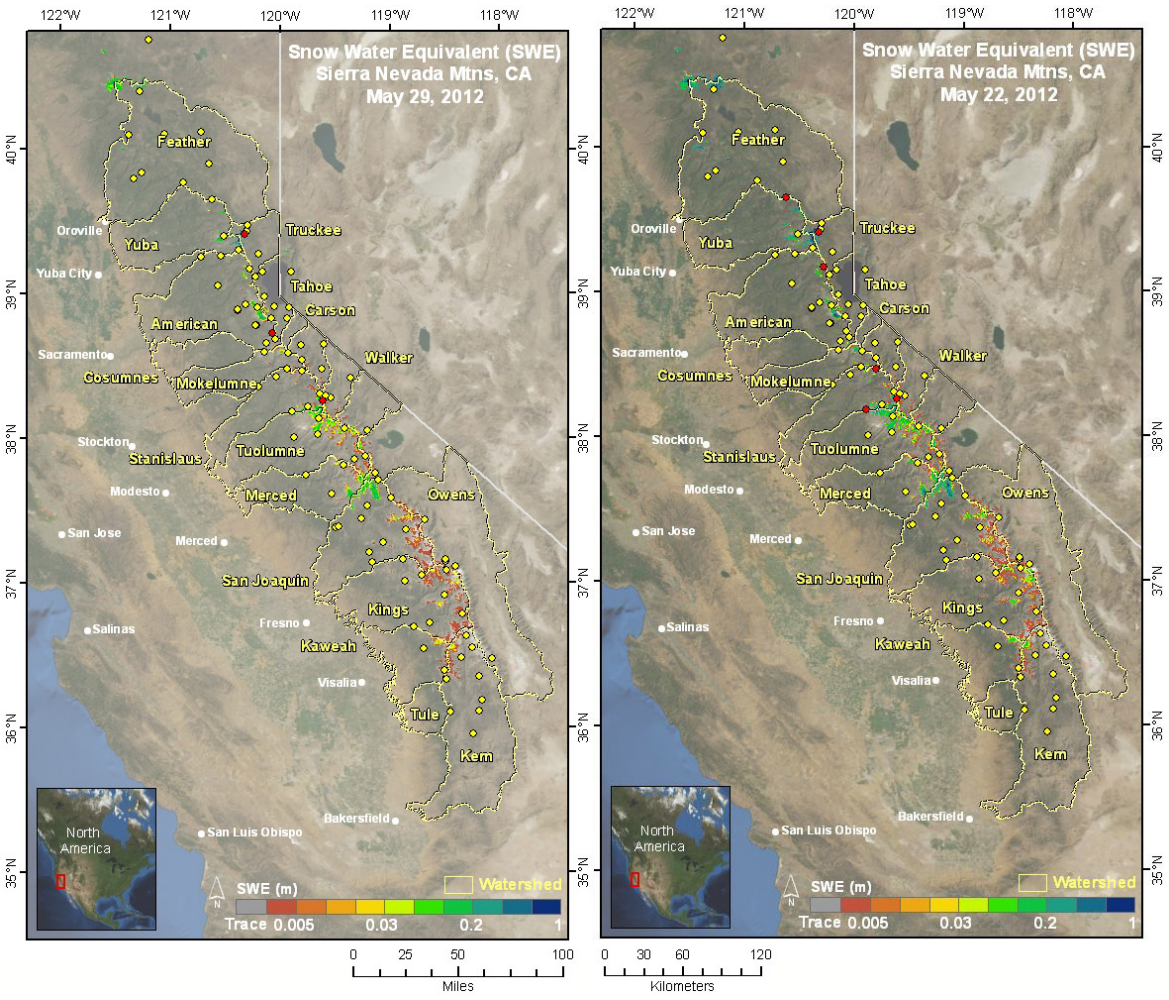
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu

Released Thursday, May 31, 2012
Brad Rippey, U.S. Department of Agriculture


Daily Precipitation (inches x.xx), for the 24 hour period ending ~7:00 am
California 5/4/2012
0.0
Trace
0.01 - 0.06
0.07 - 0.12
0.13 - 0.30
0.31 - 0.71
0.72 - 1.06
1.07 - 1.17
Del Norte
Siskiyou
Modoc
Humboldt
Trinity
Shasta
Lassen
Tehama
Plumas
Mendocino
Glenn
Butte
Sierra
Lake
Colusa
Nevada
Yuba
Placer
Yolo
Napa
El Dorado
Solano
Alpine
Marin
Calaveras
San Francisco
San Joaquin
Tuolumne
San Mateo
Stanislaus
Mono
Santa Clara
Mariposa
Santa Cruz
Merced
Madera
San Benito
Fresno
Monterey
Kings
Tulare
Inyo
San Luis Obispo
Kern
Santa Barbara
San Bernardino
Ventura
Los Angeles
Orange
Riverside
San Diego
Imperial


California Statewide Last 12 Months
Average (49'-05')
Last 12 months
DEGREES F
70
60
50
40
Mean Temperature
J J A S O N D J F M A M
Average (49'-05')
Last 12 months
INCHES
12
10
8
6
4
2
Precipitation
dark shading - 33-66 percentile
medium shading - 10-90 percentile
light shading - extremes
Western Regional
Climate Center


Snow Water Equivalent (SWE)
Sierra Nevada Mtns, CA
May 29, 2012
Snow Water Equivalent (SWE)
Sierra Nevada Mtns, CA
May 22, 2012
122°W
121°W
120°W
119°W
118°W
40°N
39°N
38°N
37°N
36°N
35°N
Feather
Oroville
Yuba
Yuba City
Truckee
Tahoe
Carson
American
Sacramento
Walker
Cosumnes
Mokelumne
Stockton
Stanislaus
Tuolumne
Modesto
Merced
Owens
San Jose
Merced
San Joaquin
Kings
Fresno
Salinas
Kaweah
Visalia
Tule
Kern
Bakersfield
San Luis Obispo
North America
SWE (m)
Trace 0.005 0.03 0.2 1
Watershed
0 25 50 100
Miles
0 30 60 120
Kilometers